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DIVISION OF AGROSTOLOGY.

[Grass and Forage-Plant Investigations.]

F. LAMSON-SCRIBNER, *Agrostologist.*

AGROSTOLOGICAL NOTES.

INTRODUCTION.

In the present circular, to which the general title "Agrostological Notes" is given, are considered:

1. Grasses in the Herbarium of Dr. H. Muhlenberg.
2. Two New Species of *Eatonia.*
3. A New Variety of *Panicum nashianum.*
4. Nomenclature Notes.
5. Notes on *Melica* and *Stipa.*

The circular is scientific in its character and is of interest to the student of systematic Agrostology. The examination of Muhlenberg's grasses by Mr. Merrill and myself has helped to clear up some doubtful points in synonymy. The several papers here presented are too short to be issued in bulletin form, but it has been thought that the matter was of sufficient importance to warrant its publication as a circular, thus avoiding needless delay.—F. L.-S.

1. THE GRASSES IN THE HERBARIUM OF DR. H. MUHLENBERG.

By F. LAMSON-SCRIBNER and ELMER D. MERRILL.

In 1817 Dr. H. Muhlenberg published his "Descriptio Uberior Graminum et Plantarum Calamarium Americæ Septentrionalis." The collections upon which this work was based are now the property of the American Philosophical Society, and at present are deposited in the Academy of Natural Sciences of Philadelphia. Through the courtesy of the Conservator of the Botanical Section of the Academy opportunity was given to make a careful examination of this collection. The specimens are preserved in folios 10½ by 15 inches, which are inclosed in wooden book-like cases, opening by a slide upon one side. They are well preserved, and although often fragmentary, at least in the case of North American material, they are sufficiently ample for identification. The *Gramineæ*, *Cyperaceæ*, and *Juncaceæ* occupy three boxes and are consecutively numbered from 1 to 414. The classification is according to the Linnæan system. No data accompany the specimens in most cases excepting the numbers, which are the same as those of the list of the species contained in the folio, written upon the outside sheet. These names are not always the same as those under which the species are published, but the arrangement of the specimens follows

that of his work and there is seldom any doubt as to the plant intended. It not infrequently happens, however, that more than one species is included in a fold. When this occurs, it is usually possible to determine the plant referred to, by careful examination of the description. Unfortunately many of Muhlenberg's species are not represented in his herbarium. There has long been a doubt as to the identity of a number of Muhlenberg's species through a lack of knowledge of his types, and it has not infrequently happened that they have been wrongly referred or the names cited as synonyms under species with which they are in no wise related. On this account the matter here presented will be of interest from the fact that it serves to clear up many points of synonymy.

"151 **Panicum pungens** M. 97 Elliott, 358." This was published as *Panicum setaceum* Muhl. Descr. 99. *Panicum neuranthum* Griseb., is the same. A specimen in this sheet bears the label "*P. uniflorum* n. s. ?"

"152 **Panicum glaucum** M. 98 a" = *Chœtochloa glauca* (L.) Scribn.

"153 **Panicum glauco** *aff. aristis purpur.* Mon. 99 a. b." This was published by Muhlenberg, Descr. 101, without name, Schrader giving it the name *Setaria affinis* in Roemer & Schultes Mantissa **2**: 276. 1824. One specimen on this sheet, labelled *Panicum polystachion*, is *Chœtochloa corrugata parviflora* (Poir.) Scribn. & Merrill. Another specimen is *Chœtochloa imberbis* (Poir.) Scribn.

"154 **Panicum lævigatum** Elliott 352 M. 99 c" = *Chœtochloa imberbis* (Poir.) Scribn. A very young form with undeveloped spikelets, exactly matched by a specimen in Herb. U. S. Department of Agriculture, collected in the Dismal Swamp, Virginia, by G. McCarthy, 1883.

"155 **Panicum viride** Mon. 100" = *Chœtochloa viridis* (L.) Scribn.

"156 **Panicum verticillatum** Mon. 98, b" = *Chœtochloa verticillata* (L.) Scribn.

"157 **Panicum italicum** M. 101 a" = *Chœtochloa italica* (L.) Scribn.

"158 **Panicum germanicum** M. 101, 6, Elliott 33'' = *Chœtochloa italica germanica* (Mill.) Scribn.

"159 **Panicum hirtellum** Elliott 85, Mon. 100 b" = *Oplismenus hirtellus* R. & S.

"160 **Panicum crus-galli** M. 102 a." There are two forms in this cover—one the common long-awned, long-branched form of *Panicum crus-galli* L.; the other, *Panicum crus-galli muticum* Vasey.

"161 **Panicum crus-galli** var. **humifusa** M. 102, 6." There is nothing in this cover.

"162 **Panicum hispidum** M. 103 b, Elliott 35" = *Panicum walteri* Pursh.

"163 **Panicum colonum** v. **serotinum** M. 103 a" = *Panicum colonum* L.

"164 **Panicum dimidiatum** Walter, Ell. 478." This was published by Muhlenberg, Descr. 108, as *Panicum walteri*, and is *P. digitaroides* Carpenter.

"165 **Panicum molle** ? Mon. 77 c" = **Eriochloa mollis** (Michx.) Kunth.

"166 **Panicum latifolium** Mon. 104 a." This cover contains both forms of *Panicum latifolium* L. (*P. porterianum* Nash and *P. pubifolium* Nash) and also a form of *Panicum commutatum* Schultes.

"167 **Panicum scoparium** M. 104 b, **macrocarpon** Ell. 481." In this cover is one specimen of true *Panicum scoparium* Lam. (*P. viscidum* Ell.) and one specimen of *Panicum pauciflorum* Ell.

"168 **Panicum clandestinum** M. 105 b"=*Panicum clandestinum* L., as understood by modern botanists.

"169 **Panicum nitidum (microcarpon)** M. 105 b"=*Panicum polyanthes* Schultes.

"170 **Panicum depauperatum** M. 106." This cover contains the form now recognized as *Panicum depauperatum*, and also specimens of *Panicum linearifolium* Scribn.

"171 **Panicum verrucosum** M. 107, 6"=The form so considered to-day.

"172 **Panicum dichotomum** M. 107 a, b." In this cover are several specimens of *Panicum dichotomum viride* Vasey, the form now considered as true *Panicum dichotomum* Linn. by common consent. The tall form of *Panicum lucidum* Ashe is also represented, and also several unrecognizable scraps.

"173 **Panicum laxiflorum** Lamarck, M. 108 a"=*Panicum barbulatum* Michx. This was published by Muhlenberg, Descr. 114. 1817, as *Panicum discolor* Sprengel. In this cover are also a few scraps of the form generally referred to *Panicum pubescens* Lam. by recent authors.

"174 **Panicum flexuosum** ? M. 108 b." This form was published by Muhlenberg in his Descriptio 115, as *Panicum discolor* co-species *vel varietas major*, and is exactly identical with *Panicum mattamusketense* Ashe, Journ. E. Mitch. Sci. Soc. **15**:45. 1898. Ashe's name must, however, be retained as *major* is preoccupied by *Panicum nitidum* var. *majus* Pursh, Fl. Am. Sept. **1**:67. 1814.

"175 **Panicum pubescens** M. 109." This cover contains true *Panicum scoparium* Lam. (*P. viscidum* Ell.), and also several plants erroneously referred by botanists to *Panicum pubescens* Lam.

"176 **Panicum melicarium** M. 112." This species has previously been referred to *Panicum hians* Elliott, but is *Sporobolus junceus* (Michx.) Kunth.

"177 **Panicum agrostoides** M. 111." This cover contains the form generally referred to *Panicum agrostoides* Muhl., and also specimens of *Panicum elongatum* Pursh, not Salisb.

"178 **Panicum divergens** Elliot 358, M. 112, 6"=*Panicum cognatum* Schultes.

"179 **Panicum virgatum** M. 112." This cover contains several specimens of the form considered to-day as true *Panicum virgatum* L. and also a specimen of *Panicum amarum* Ell.

"180 **Panicum rostratum** M. 113, **anceps** Mx."=*Panicum anceps* Michx. There is also a specimen of *Panicum agrostoides* Muhl. in this cover.

"181 **Panicum geniculatum (dichotomiflorum)** M. 114"=A small branched form of *P. proliferum* L.

"182 **Panicum capillare** L. M. 115 a"=The common large panicled form of this species.

"183 **Panicum capillare minor**"=*Panicum flexile* (Gatt.) Scribn. Mr. Nash[1] referred the wrong plant to *Panicum minus* (Muhl.) Nash. The synonymy of this form should be as follows:

PANICUM PHILADELPHICUM Bernh.; Trin. Gram. Pan. 216. 1826, as synonym; Nees, Agrost. Bras. 198. 1829. (*Panicum diffusum* Pursh, Fl. Am. Sept. **1**:68. 1814, not Swartz, 1788; *P. capillare minus* Muhl. Descr. 124. 1817, not *P. pubescens minor* Poir. in Lam. Encycl. **4**:272. 1816, nor *P. minus* Nash, Bul. Torr. Bot. Club, **22**:421. 1895. *P. capillare flexile* Gatt. Tenn. Fl. 94. 1887; *P. flexile* (Gatt.) Scribn. Bul. Torr. Bot. Club, **20**:416. 1893.) We believe

[1] Bul. Torr. Bot. Club, **1**:421. 1895.

Panicum philadelphicum to be the earliest tenable name for this species, as the description applies to the form here referred to that species, and, moreover, the statement is made by Nees that he had seen specimens in Schreber's Herbarium (which were doubtless from Muhlenberg), and at the same time he cites *Panicum capillare minus* Muhl., as a synonym. For the form referred by Mr. Nash to *Panicum minus* we propose the following: PANICUM MINIMUM (Engel.) n. comb. (*Panicum capillare minimum* Engel.; Scribn. Tenn. Agr. Exp. Sta. Bul. **7**:44, *fig. 40*, 1894; *P. minus* Nash, Bul. Torr. Bot. Club, **22**:421. 1895, not *P. capillare minor* Muhl. Descr. 124. 1817.)

"184 **Panicum** ——— M. 116 a, N. Angl." This is described on page 37 of the "Descriptio" without name. Roemer & Schultes gave it the name of *Panicum spretum*, Mantissa, **2**:248. 1824. This is exactly *Panicum eatoni* Nash, Bul. Torr. Bot. Club, **25**: 84. 1898, and should be referred to *Panicum nitidum* Lam. (See Bul. **24**, Division of Agrostology.)

"185 **Panicum aquaticum** M. 116 b, Elliott 38"=*Panicum gibbum* Ell.

"186 **Panicum ciliatum** M. 117, Elliott 480"=*Panicum ciliatum* Ell.

"187 **Panicum strigosum** M. 117, Elliott 497." This species is in the same relative position in Muhlenberg's Herbarium as is the description of *Panicum cartilagineum* in his "Descriptio." There is in this cover of *Panicum strigosum* one specimen of *Panicum nashianum* Scribn., one specimen of *Panicum scabriusculum* Ell., and several specimens labeled "*Panicum aureum*," which are now referred to *Panicum laxiflorum* Lam. *Panicum nashianum* Scribn. =? *P. cartilagineum* Muhl.

"188 **Panicum**, guinea-grass polyg."=*Panicum maximum* Jacq.

"189"=188.

"190 **Panicum** near **enslini**." This cover contains both *Panicum baldwinii* Nutt. and *P. wrightianum* Scribn.

"191 ———" This cover contains several forms of *Panicum commutatum* Schultes.

"192 **Panicum parvulum** M. 110, 6." In this cover are several unrecognizable scraps, and also three plants with a label attached, bearing the name *Panicum deustum*. We consider this to be the type of *Panicum tenue* Muhl. Descr. 118, and it is exactly identical with *Panicum trifolium* Nash. The synonymy of this species is as follows:

PANICUM TENUE Muhl. Descr. 118. 1817. (*Panicum deustum* Brickell et Enslin, l. c. 119, as synonym; *Panicum liton* R. & S. Mant. **2**: 250. 1824; *Panicum macrum* Kunth, Rev. Gram. **1**: 40. 1835; *Panicum trifolium* Nash, Bul. Torr. Bot. Club, **26**: 580. 1899.) *Panicum tenue* Muhl., was changed by Roemer & Schultes and by Kunth because of an earlier use of the name by Roxburgh, Catalog. 1813, but we believe this earlier publication is a *nomen nudum*, the description not being published until the issue of his Flora Indica **1**: 306. 1820, in which case Muhlenberg's name *Panicum tenue* should be retained. It is possible that this species is true *Panicum ensifolium* Baldw. ex Ell. Sk. Bot. S. C. and Ga. **1**: 126. 1817. A careful search in the herbarium of the Academy of Natural Sciences of Philadelphia, revealed no *Panicum ensifolium* from Baldwin.

"193 **Panicum simplici** *affini* Baldw. 866 *Milium*"=?

"194 **Panicum dubia** Baldw." This cover contains unrecognizable scraps of several species.

The following species of *Panicum*, considered by Muhlenberg, are not represented in his herbarium:

11 **Panicum** ——— Muhl. Descr. 106. 1817 (sine nomine). Evidently a form of *Panicum crus-galli* L.

12 **Panicum** ——— Muhl. Descr. 106. 1817 (sine nomine). Evidently a form of *Panicum crus-galli* L.

25 **Panicum nervosum** Muhl. Descr. 116. 1817, not Lam. (*P. commutatum* Schultes.)

27 **Panicum** ——— Muhl. Descr. 118. 1817 (sine nomine) (*Panicum Muhlenbergianum* Roemer & Schultes Mant. **2**: 230. 1824.)

33 **Panicum densum** Muhl. Descr. 122. 1817.

36 **Panicum acuminatum** Swartz, in Muhl. Descr. 125. 1817. (*Panicum Muhlenbergii* Sprengel, Syst. Veg. **1**: 143. 1825; *P. sprengelii* Kunth, Rev. Gram. **1**: 39. 1835.)

39 **Panicum** ——— Muhl. Descr. 127. 1817 (sine nomine). (*Panicum tremulum* Spreng. ex Roemer & Schultes, Mantissa **2**: 237. 1824.)

41 **Panicum cartilagineum** Muhl. Descr. 128. 1817. ?

"201 **Eleusine filiformis**" published as *Eleusine sparsa* Muhl. Descr. 135. 1817.= *Leptochloa mucronata* (Michx.) Kunth, a depauperate form.

"206 **Poa viridis**" Muhl. Descr. 138. 1817.= *Poa pratensis* Linn.

"207 **Poa stolonifera**" Haller in Muhl. Descr. 139. 1817.= *Poa trivialis* Linn.

"214 **Poa capillaris** var." *Poa capillaris* co-species, Muhl. Descr. 145. 1817.= *Eragrostis frankii* Steud.

"215 **Poa hirsuta**" Muhl. Descr. 145. 1817.= *Eragrostis pectinacea* (Michx.) Steud. A specimen of *Eragrostis trichodes* (Nutt.) Nash, is also in the sheet.

"216 **Poa reflexa** Ell. 361." Published as *Poa refracta* Muhl. Descr. 146. 1817.=*Eragrostis refracta* (Muhl.) Scribn.

"223 **Poa stricta uniflora.**" This was published as *Poa ? uniflora* Muhl. Descr. 151. 1817, and is the same as the species now called *Sporobolus serotinus* (Torr.) A. Gray. The synonomy should be as follows:

SPOROBLUS UNIFLORUS Muhl. new comb. (*Poa ? uniflora* Muhl. Descr. 151. 1817; *Agrostis serotina* Torr. Fl. U. S. **1**: 88. 1824; *Sporobolus serotinus* A. Gray. Man. Bot. 577. 1848).

"235 **Festuca prostrata.**" This was published as *Festuca procumbens* Muhl. Descr. 163. 1817, and is the same as *Leptochloa fascicularis* (Lam.) A. Gray.

"238 **Festuca clandestina**" Muhl. Descr. 162. 1817.=A depauperate form of *Leptochloa fascicularis* (Lam.) A. Gray.

"**Festuca brevifolia**" Muhl. Descr. 167. 1817.= *Triplasis purpurea* (Walt.) Chapm. In this sheet are also specimens of *Panicularia acutiflora* (Torr.) Kuntze.

"248 **Bromus ciliatus**" Muhl. Descr. 169.=*Bromus kalmii* A. Gray. There are fragments of several other species in this sheet.

"252 **Aristida oligantha.**" This is the form published by Muhlenberg as *Aristida racemosa* Descr. 172. 1817, and is *Aristida purpurascens* Poir. *Aristida oligantha* Muhl. Descr. 173, is not represented in the herbarium.

"256 **Elymus villosus**" Muhl. Descr. 175. 1817—Muhl. in Willd. Enum. 131. 1809.= *Elymus striatus* Willd., at least in part. Specimens of *Elymus hirsutiglumis* Scribn. are also in the sheet, but Muhlenberg's description does not apply to this species.

"258 **Elymus glaucifolius**" Muhl. Descr. 177. 1817—Muhl. in Willd. Enum. 131. 1809.=*Elymus canadensis glaucifolius* A. Gray.

"261 **Elymus ciliatus**" Muhl. Descr. 179. 1817. In this sheet there is only the spike of the plant, which is evidently a form of *Elymus striatus* Willd., with unusually narrow outer glumes.

"267 **Avena glumosa**" Muhl. Descr. 184. 1817.=*Danthonia sericea* Nutt., not *Danthonia glumosa* Beauv.

"278 **Erianthus brevibarbis**" Muhl. Descr. 193. 1817.=*Erianthus strictus* Baldw. ex Elliott, Sk. Bot. S. C. and Ga. **1**:39. 1816. There are a few short hairs at the base of the pedicellate spikelets.

"387 **Holcus odoratus**" Muhl. Descr. 273. 1817.=*Savastana odorata* (L.) Scribn.

"389 **Holcus saccharatus**" Muhl. Descr. 275. 1817, is a form of cultivated *Sorghum*, called broom corn.

"390 **Holcus cernuus**" Muhl. Descr. 276. 1817, is also a form of cultivated *Sorghum*.

"391 **Chloris monostachya**" Muhl. Descr. 286. 1817.=*Campulosus aromaticus* (Walt.) Trin.

"394 **Atheropogon apludoides**" Muhl. Descr. 287. 1817.=*Bouteloua curtipendula* (Michx.) Torr.

"402 **Andropogon, Elliott, glaucus** M. 264 b." *A. glaucus* Muhl. Descr. 278. 1817.=A slender form of *Andropogon glomeratus* (Walt.) B. S. P.

"407 **Andropogon purpurea.**" Published as *Andropogon purpurascens* Muhl. Descr. 282. 1817.=*Andropogon scoparius* Michx.

2. TWO NEW SPECIES OF EATONIA.

EATONIA PUBESCENS Scribn. & Merrill sp. nov.

An erect or ascending, tufted, pubescent perennial 4 to 8 dm. high, with linear leaves and exserted contracted panicles. Culms densely pubescent below, with short, spreading or reflexed matted hairs, sometimes nearly smooth above; nodes smooth; sheathes shorter than the internodes, strongly striate, densely pubescent, with hairs similar to those of the culm; ligule prominent, generally hyaline, obtuse, somewhat lacerate, 3 mm. long, rather densely pubescent on the back; leaf-blades linear, 10 to 18 cm. long, 4 to 6 mm. wide, slightly auriculate at the base, very strongly scabrous on both surfaces and margins, often somewhat pubescent beneath, with short spreading hairs. Panicle lanceolate in outline, 10 to 18 cm. long, rather densely flowered; common axis sparingly pubescent; branches erect or ascending, the lower ones 5 to 6 cm. long. Spikelets 3 to 3.5 mm. long, 2-flowered; empty glumes very unequal, the first linear, scabrous on the keel, nearly 2 mm. long, the second 2 to 2.2 mm. long, broadly obovate, obtuse or truncate, scabrous on the keel and on the two faint lateral nerves; flowering glumes lanceolate, acute, sparingly scabrous at the apex, slightly punctate, sessile one about 2.5 mm. long, the pedicellate one slightly shorter.

Type specimen collected by S. M. Tracy at Starkeville, Miss., April 30, 1891, distributed as *Eatonia pennsylvanica* (DC.) A. Gray. Other specimens referable to this species, Hinson Springs, Tex., L. C. Johnson, 1886; Palestine, Tex., 45 E. N. Plank, April, 1895.

This species is related to *Eatonia obtusata* (Michx.) A. Gray, but is readily distinguished by its densely pubescent culms, sheaths, and ligule.

EATONIA ARISTATA Scribn. & Merrill sp. nov.

An erect nearly glabrous, perennial, with very long, narrow leaves, elongated, contracted panicles, and rather small spikelets, the second flowering glume bearing a short awn. Culms and nodes smooth; sheaths shorter than the internodes, striate, often sparingly pubescent between the striae; ligule hyaline, obtuse, 1.5 mm. long; leaf blades linear, glabrous, 10 to 18 cm. long, about 2 mm. wide. Panicles 15 to 25 cm. long, interrupted, the branches erect or ascending, the lower ones 5 to 7 cm. long, somewhat flexuous. Spikelets 3 to 3.5 mm. long, 2 to 3 flowered; first glume very narrow, linear, slightly scabrous on the keel, about 2 mm. long; second glume 2.5 mm. long, broadly ovate, acute, slightly scabrous on the keel; sessile floret about 2.5 mm. long, acute, very slightly scabrous and punctate, its palea nearly equaling the glume; pedicellate spikelet shorter, scabrous, bearing a scabrous awn just below the apex 1 to 2 mm. in length, which is sharply geniculate, forming nearly a right angle with the glume.

Type specimen collected in South Carolina by A. H. Curtiss in 1875.

This species closely resembles *Eatonia filiformis* in its very long, narrow leaves and panicles, but is distinguished from that species by its larger spikelets and awned second floret. It is most closely related to *Eatonia pallens*, but is at once distinguished by its elongated and very narrow leaves, smaller spikelets, and geniculate awn of the second flowering glume.

This plant was considered by Vasey[1] as being identical with the species discussed as a hybrid between *Eatonia pennsylvanica* and *Trisetum palustre*, but it is very distinct from that species. This form, like *Eatonia pallens*, shows the close relationship of *Eatonia* to *Trisetum*.

EATONIA PALLENS (Spreng.) Scribn. & Merrill, new comb. (*Aira pallens* Spreng. Mant. Fl. Hal. 33. 1807; *A. pallens* Muhl. Descr. 84. 1817, at least in part; *Trisetum palustre* Torr. × *Eatonia pennsylvanica* (DC.) A. Gray; Vasey, Bot. Gaz. **9**:165. 1884; and Scribn. l. c. 167. *fig. 1.*)

An erect perennial 6 to 10 dm. high, with linear leaves, long contracted panicles and pale spikelets, the second flowering glume bearing a slender awn at the apex. Culms and nodes glabrous; sheaths shorter than the internodes, striate, glabrous; ligule about 2 mm. long, hyaline, obtuse, lacerate; leaf blades thin, 7 to 16 cm. long, 3 to 5 mm. wide, scarcely narrowed at the auriculate base, striate, slightly scabrous on the margins and nerves above, otherwise glabrous. Panicle pale, exserted, lanceolate in outline, 12 to 18 cm. long, the branches fasciculate, erect or ascending, slender and somewhat flexuous, the lowers ones 5 to 6 cm. long, naked below, rather densely flowered above. Spikelets 4 mm. long, 2-flowered; empty glumes very unequal, the first 2.5 mm. long strongly-compressed, scabrous on the keel, hyaline on the margins, lanceolate, acute and about 0.6 mm. broad when spread out, the second glume 3 mm. long, much broader than the first, scabrous on the keel, broadly obovate, about 1.7 mm. broad when spread out; first floret sessile, its flowering glume 3.3 mm. long, lanceolate, acute, scabrous on the keel, peculiarly and finely punctate. Palea hyaline 2.5 mm. long, cleft at the apex. Second floret pedicellate, its rachilla somewhat hispid, similar to the sessile floret except in being slightly shorter and bearing a slender scabrous somewhat flexuous awn about 2 mm. long, immediately below the apex.

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[1] Bot. Gaz. **9**:166. 1884.

Type locality: "Pensylvania." General distribution: in wet meadows, Pennsylvania and Virginia, June–July.

The original description of this species and also Muhlenburg's description are given below.

"*Aira pallens* aristata, panicula contracta, valvulis calycinis inæqualibus, flosculo altero aristato, altero mutico. Folia linearia, glabra, rigida, subinvoluta, vaginis pubescentibus.

E. Pensylvania *Muhlenb.*" Sprengel, Mantissa Flora Halensis 33. 1807.

"*Aira pallens.* Culmo tripedali erecto nodoso. Foliis lineari-lanceolatis glabris, nodis glabris. Ligula retusa ciliata. Vagina substriata. Panicula contracta nutante. Ramis paniculæ 5, ternis geminisque scabris, ramulis alternis. Cal. gluma 2-valvis corolla minor, nervosa, scabra, valvula una latiori; altera lineari utraque acuminata mutica, bi- et triflora, flosculo uno pedicellato, omnibus hermaphroditis. Cor. gluma 2-valvis puncticulata, flosculi sessilis mutica, pedicellati aristata, arista paulo infra apicem sive dorsali contorta, pedicello flosculi lævi nec pubescente. Stam. 3. Pist. 2. Semen glabrum. Radix perennis. Habitat in pratis humidis et varietas omnino mutica in sylvis, floret Junio et iterum Sept. *Aira Pennsylvanica*, Sprengel. Habitus *Avenæ sesquitertiæ*, cf. *Avena palustris*, Michaux." Muhlenberg Descriptio 84. 1817.

In Muhlenberg's herbarium there are two sheets, one labeled "128 *Aira pallens*" and the other "129 *Aira pallens* var. *aristata.*" In the first sheet are several fragments of *Deschampsia flexuosa* Trin., *Poa debilis*, Torr. and an *Eatonia*, probably *Eatonia nitida* (Spreng.) Nash., while in the second sheet there are specimens of *Trisetum palustre* Torr., and the grass described by Vasey as a hybrid between *Eatonia pennsylvanica* and *Trisetum palustre*, the form here taken up as *Eatonia pallens.* It is at once evident from an examination of Muhlenberg's description above, that this last form is the plant described by Muhlenberg as *Aira pallens.* Muhlenberg erred in citing *Aira pennsylvanica* Spreng., as a synonym, as this species is awnless and is *Eatonia nitida* (Spreng.) Nash.

Sprengel's description of *Aira pallens* does not exactly apply to our plant, as he speaks of its subinvolute leaves and pubescent sheaths. It is very probable that he had other species under the same name, possibly *Eatonia nitida* or some species of *Trisetum*, as is the case in Muhlenberg's Herbarium. This is more probable, because Sprengel received the material on which the species was based, from Muhlenberg.

This form was discussed by Vasey and also by Scribner[1] as a hybrid between *Trisetum palustre* and *Eatonia pennsylvanica*, and in this discussion the close relationships of *Eatonia* and *Trisetum* are pointed out with the conclusion that the genus *Eatonia* should properly be placed in the *Aveneæ* next to *Trisetum* and not in the *Festuceæ*, where it now is. In considering this form as a species in the genus *Eatonia*, it is necessary to modify the character of the genus so as to include this awned form. See Scribner, U. S. Dept. Agr., Div. Agros., Bul. **20** : 135, *fig. 104*, 1900. This species is at once distinguished from *Eatonia pennsylvanica* (DC.) A. Gray, to which it is most closely allied, by its awned second-flowering glume.

The only specimens we have seen referable to this species is the one in Muhlenberg's Herbarium and a specimen collected at Hunting Creek, Alexandria, Va., by Dr. Vasey, June 6, 1884.

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[1] Bot. Gaz. **9**. 165–169. 1894.

3. A NEW VARIETY OF PANICUM NASHIANUM.

PANICUM NASHIANUM PATULUM Scribn. & Merrill var. nov.

Culms much branched, slender, often purplish, puberulent or short pubescent throughout; sheaths much shorter than the internodes, rather densely pubescent, with short, spreading hairs, ciliate on the margin; leaf blades densely short-pubescent on both sides, papillate ciliate, with few long hairs on the rather strongly cartilaginous margins. Rachis and branches densely puberulent. Spikelets 2 to 2.5 mm. long; first glume thin, obtuse, about one-third as long as the spikelet; second and third glumes densely pubescent, with short, spreading hairs.

Type specimen: 1296 Robert Combs, Braidentown, Manatee County, Fla., September 3, 1898.

General distribution: In fertile hammock and pine woods, Florida and Mississippi, March to September. Other specimens referred to this species: *Florida:* Old Town, 858, 859 Combs, 1898; Grasmere, 1169 Combs, 1898; Lake City, 132 (in part) Combs and Rolfs, 1898; Lake Alfred, T. Holm, 1893; Jacksonville, 140 T. H. Kearney, 1895. *Mississippi:* Biloxi, 4586, 4587 S. M. Tracy, 1898.

This variety is closely related to the species, intermediate forms occurring, and approaches *Panicum demissum* Trin. nearer than any other North American plant we have seen. From the former it is at once distinguished by its pubescent culms, sheaths, and leaves, and larger densely pubescent spikelets. From the latter it is distinguished by its much smaller one-nerved first glume and densely pubescent first and second glumes. The spikelets of *Panicum demissum* are glabrous.

4. NOMENCLATURE NOTES.

PANICUM RAMISETUM Scribn. nom. nov. *Panicum subspicatum* Vasey, U. S. Dept. Agr. Div. Bot. Bul. **8**:25, 1889, not Desvaux, Opuscules 84, 1831.

AGROPYRON OCCIDENTALE Scribn. new comb. (*Agropyron glaucum occidentale* Scribn. Trans. Kans. Acad. Sci. **9**:119. 1885; *A. spicatum* Scribn. & Smith, U. S. Dept. Agr. Div., Agros. Bul. **17**:298, *fig. 594,* 1899, not *Festuca spicata* Pursh, Fl. Am. Sept. **1**:83. 1814; *Agropyron smithii* Ryd. Mem. N. Y. Bot. Gard. **1**:60. 1900.) Rydberg states that he examined the type of *Festuca spicata* Pursh, in the herbarium of the Academy of Natural Sciences of Philadelphia, and found that this form had been wrongly interpreted in Bulletin No. 4 of this Division. He, therefore, applied the name *Agropyron smithii* to this species, under the impression that *Agropyron glaucum occidentale* Scribn. was a *nomen nudum.* A description of this variety was published, however, in the Trans. Kan. Acad. Sci. **9**: 119. 1885, and according to the Rochester rules, the name *occidentale* will have to be retained for this species.

AGROPYRON OCCIDENTALE PALMERI Scribn. new comb. *Agropyron spicatum palmeri* Scribn. & Smith, U. S. Dept. Agr., Div. Agros., Bul. **4**:33. 1897; *A smithii palmeri* Heller, Cat. N. Am. Pl. ed. 2, **3**. 1900.

AGROPYRON OCCIDENTALE MOLLE Scribn. new comb. *Agropyron spicatum molle* Scribn. & Smith, l. c.; *Agropyron molle* Ryd., Mem. N. Y. Bot. Gard. **1** : 64. 1900.

ELYMUS BOREALIS Scribn. nom. nov. *Elymus ciliatus* Scribn., U. S. Dept. Agr., Div. Agros., Bul. **11** : 57, *pl. 16,* 1898, not Muhl. Descr. 179. 1817. *Elymus ciliatus* Muhl. is not listed in Index Kewensis.

5. NOTES ON MELICA AND STIPA.

NOTE.—The following notes were made by Prof. C. V. Piper while studying the types of certain Western grasses in the Gray Herbarium, Cambridge, Massachusetts, and later at the herbarium of the Division of Agrostology.—F. L.-S.

MELICA BELLA Piper, nom. nov. (*M. bulbosa* Geyer in Hook. Journ. Bot. and Kew Gard. Misc. **8** : 19. 1856, *nomen nudum*; *M. bulbosa* Geyer in Gray, Proc. Am. Acad. **8** : 409. 1872, *nomen nudum*; *M. bulbosa* Geyer in U. S. Dept. Agr., Div. Bot., Bul. **13** : 63, *pl. 63*, 1893, not *Melica bulbosa* Geyer in Thurber in S. Wats. Bot. Cal. **2** : 304. 1880.)

The fact seems to have been overlooked hitherto that both the first and second publications of the name *Melica bulbosa* Geyer are *nomina nuda*. The first publication of the name, with a description appended, is that of Thurber in the botany of California, and while the species there described is not the original plant of Geyer at all, nevertheless the name must stand for the plant there described.

The first description of *Melica bella*, the original species of Geyer, is in U. S. Dept. Agr., Div. Bot., Bul. **13**, Vasey's "Grasses of the Pacific Slope." It is somewhat variable, but its cæspitose habit distinguishes it from its immediate allies. Geyer's plant, which may be designated the type of *Melica bella*, and which is in the Gray Herbarium, was collected in a "rocky ravine, Upper Platte." It is matched by Cusick's No. 900*a*, from Union County, Oregon.

STIPA THURBERIANA Piper, nom. nov. (S. *occidentalis* Thurb. in Wilkes U. S. Explor. Exped. **17** : 483. 1874, not U. S. Geol. Explor. 40th Par. **5** : 380. 1871.)

Much confusion has arisen in the names of the above two Stipas. Thurber first described as *Stipa occidentalis* a plant collected by Pickering and Breckenridge in Washington on the "N. branch of the Columbia," which was not published, however, until 1874. In the mean time he had identified and named Californian plants of Bolander's collection as *Stipa occidentalis*, one of which, No. 5038, from "Yosemite Trail," was taken by Watson as the type of *Stipa occidentalis* published in the Botany of the King Expedition in 1871.

Dr. Vasey in 1882 detected the fact that the form described as *Stipa occidentalis* in the U. S. Geol. Explor. 40th Par., 1871 was different from that described in Wilkes U. S. Explor. Exped. 1874, but in segregating them, unfortunately renamed the one which had first been published, namely, the plant described in the U. S. Geol. Explor. 40th Par. 1871.

It is clear, therefore, that the name "*Stipa occidentalis*" must pertain to the plant published in the U. S. Geol. Explor. 40th Par. 1871, and consequently the plant of the Wilkes' U. S. Explor. Exped. 1874, is here renamed.

Stipa occidentalis Thurber, in Watson U. S. Geol. Explor 40th Par. **5** : 380. 1871. (*S. stricta* Vasey, Bul. Torr. Bot. Club, **10** : 42. 1883, not Lamarck, Tabl. Encycl. **1** : 158. 1791. *S. stricta sparsiflora* Vasey, Contr. U. S. Nat. Herb. **3** : 51. 1892. *S. oregonensis* Scribn., U. S. Dept. Agr. Div. Agros. Bul. **17** : 130, *fig. 426*, 1899.)